cases in newer and colder regions globally due to climate becoming more conducive for the parasite and vector ultimately depending upon effectiveness of adaptation and mitigation strategies for climate change.

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Natural foci of tick-borne pathogens in the center of the megalopolis, Russia

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Background: The increased rate of urbanization has attracted attention to the problem of vector-borne diseases in urban areas. In these areas for a long time there were pockets of natural infections. Urbanization has been connected with the sharp increase of urban pet populations, which are excellent hosts for ticks. We assume that foci of natural infection persist, more adapted to the emerging conditions. The most dangerous reservoir of infection are the ticks, which are known to carry and transmit a number of microbial agents that cause diseases in humans and animals. Among these are members of the order Rickettsiales.

Therefore, the aim of our work was to study the prevalence of ticks and their infection in an urban parks of Novosibirsk and to try to outline some general dependence of tick survival in urban areas and possible ways of protection from tick attacks and, from the danger of infections with tick-transmitted pathogens in towns.

Methods: All ticks were collected in urban parks of Novosibirsk and screened for DNA of Rickettsia spp. and Borrelia spp. by PCR.

Results: A total of 2,067 ticks were collected in Novosibirsk (2011). Most were immature forms (90%) belonging to the Ixodes ricinus, the remaining, adult ticks belonged to Dermacentor marginatus. Ticks were assessed for rickettsial DNA by a PCR using primers for the SFG–specific rickettsial rompA gene. The pathogen was detected in 13.9% of ticks. In 51.8% of collected samples were infected with Borrelia spp. In 722 ticks coinfections with Borrelia spp., SPF-rickettsiae were present. Result of our work is the epidemiological map of the megapolis on which marked the identified foci of natural infections.

Conclusion: This study shows that Rickettsia spp. and Borrelia spp. are present in ticks, collected in parks of Russian megapolis. We found that natural foci of infection have been preserved, despite the ongoing acaricidal measures. The broad spectrum of copathogens indicates interactions in transmission cycles and the possibility of coinfections in humans and domestic animals. Therefore, visitors to urban public parks, public-health physicians should be made aware of the potential risk of tick bites and the possible medical consequences on the urban population.

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Do carriage rates of *Staphylococcus aureus* and MRSA differ between elderly homes resident and elderly attendees of day care centres?

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Background: It has been recognized that elderly subjects resident in homes for the elderly are at higher risk for carriage of MRSA. This is often attributed to chronic disease, frequent hospitalization, use of antibiotics and loss of natural teeth. There have been few reports of carriage rates of elderly subjects living in the community. This study compared carriage rates of *S. aureus* and MRSA in subjects residing in elderly homes and in the community in Hong Kong.

Methods: Nasal and oral swabs were collected on two occasions one month apart from 235 subjects in four elderly homes and 113 subjects attending day care centres. All subjects completed a questionnaire about chronic disease, hospitalization, antibiotic use, and use of dentures. Swabs were cultured for presence of *S. aureus* and MRSA. Rates of colonization and association with risk factors were calculated.

Results: *S. aureus* (MSSA and MRSA) and MRSA carriage were 42.6 and 30.6% respectively in the elderly home residents in comparison with 24 and 2.7% in day care attendees. Both of these rates were significantly different ($p<0.001$). Persistent carriage of *S. aureus* and MRSA was observed in 48.5 and 18.2% of residential elderly in comparison with 25% persistent *S. aureus* carriage in daycare attendees ($p=0.013$). No daycare subjects were persistently colonized with MRSA ($p<0.001$). None of the risk factors investigated reached significance in residents of the elderly homes. In day care residents only using dentures significantly reduced risk of *S. aureus* contamination. There were significant differences observed in both *S. aureus* (range 20 – 66.7%) and MRSA colonization (7.5-61.7%) between the elderly homes visited.

Conclusion: Residence in an elderly home was clearly a risk factor for colonization with both *S. aureus* and MRSA. However, the wide variation of colonization rates between elderly homes between homes showed that differences between the homes contribute greatly to the chance of colonization. These differences are likely to have masked effects of other risk factors for MRSA colonization. Improvements in infection control are necessary to reduce MRSA colonization.

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